

New River Health District

Guidance for Health Care Providers

Diagnosis and Treatment of West Nile Virus

Updated 7-1-03

Organism	<ul style="list-style-type: none"> West Nile virus <i>Flaviviridae</i> Family Member of Japanese encephalitis serocomplex
Mode of transmission	<ul style="list-style-type: none"> Bite from an infective mosquito (<i>Culex</i>, <i>Aedes</i> and <i>Ochlerotatus</i> species) Blood transfusions, organ transplantation, transplacental, possibly via breast milk Not transmitted person-to-person
Sentinels	Birds (Usually blue jays, crows and raptors)
Mortality	<ul style="list-style-type: none"> Mortality highest among persons aged >50 years old 4-14 % mortality among hospitalized patients Independent risk factors for death include altered mental status, diabetes mellitus, advanced age, immunosuppression
Incubation period	3-14 days
Age	2002 U.S. outbreak: Range 0-99 years, Median 55
Signs and symptoms	<ul style="list-style-type: none"> Usually asymptomatic (only 1 in 5 people infected will develop symptoms). When symptoms do develop, they are usually mild and nonspecific; these may include fever, headache, malaise, myalgia, nausea, vomiting, lymphadenopathy, and maculopapular rash. Only an estimated 1 in 150 infected persons develops more serious illness, including encephalitis or meningitis. Other significant symptoms reported: <p>Severe muscle weakness, complete flaccid paralysis, polio-like syndrome,</p> <p>cranial nerve abnormalities, optic neuritis, seizures, polyradiculitis, ataxia,</p> <p>weakness out of proportion to exam, Parkinson-like symptoms</p>
Lab findings	<ul style="list-style-type: none"> Normal or slightly elevated white blood cell count CSF: leukocytosis, mostly lymphocytes; elevated protein (51-900 mg/dl), normal glucose Head CT usually negative Head MRI enhancement of leptomeninges and/or periventricular areas (one-third of cases)

Criteria for Arbovirus testing	<p>Any adult or pediatric patient with viral meningo-encephalitis (Criteria a, b and c below) with or without associated muscle weakness (Criterion d)</p> <ol style="list-style-type: none"> Fever $\geq 38^{\circ}\text{C}$ (100°F), and Altered mental status (altered level of consciousness, agitation, lethargy) and/or other evidence of cortical involvement (e.g., focal neurologic findings, seizures), and CSF pleocytosis, predominantly lymphocytes, and/or elevated protein and a negative gram stain and culture, and/or Muscle weakness (including flaccid paralysis) confirmed by exam or by EMG.
Laboratory specimens	<p>WNV is a Biosafety Level 3 pathogen. The following specimens should be submitted to the state lab, Division of Consolidated Laboratory Services (Call your hospital Infection Control Practitioner or contact the New River Health District epidemiologist at 540-381-7100 for more information):</p> <ul style="list-style-type: none"> Paired acute and convalescent sera (MAC-ELISA and IgG ELISA) – preferably, 2 ml sera in a plastic tube (refrigerated) or 5 ml coagulated whole blood. CSF – (MAC-ELISA, Real-time RT-PCR, or viral isolation) – 1 ml in plastic tube (frozen) Brain, biopsy or postmortem tissue (Real-time RT-PCR; viral isolation) – 1 gram (frozen) Paired sera are needed if acute serum is negative (can be negative for first 8 days) and to be sure that antibodies are not from earlier illness (IgM can be positive for many months). In order to distinguish among flaviviruses, DCLS will forward to CDC for PRNT confirmation testing. It is critical to obtain date of onset and travel / vaccination history (Yellow Fever and Japanese Encephalitis vaccines also cross-react with WNV)
Treatment	<p>Supportive care</p>
Prevention	<ul style="list-style-type: none"> No vaccine is available Mosquito control (habitat elimination, larvicides, adulticides) Personal protection (avoid mosquitoes; wear protective clothing, safely use of insect repellants)
Reporting to Local Health Department	<ul style="list-style-type: none"> Prefer immediate notification to facilitate specimen collection and transport to DCLS State regulations require that arboviral infections be reported to the health department within 7 days. All suspect cases should be reported to either Katherine McCombs, District Epidemiologist, or Dr. Jody Hershey, Director, New River Health District, using an Epi-1 reporting form, an initial case report form, or via telephone (540-381-7100, ext. 189 and 156, respectively).